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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,758	10/02/2003	Haoren Zhuang	14580-037001	6618
20985	7590	04/04/2006	EXAMINER	
FISH & RICHARDSON, PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			VINH, LAN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,758

Applicant(s)

ZHUANG ET AL.

Examiner

Lan Vinh

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1,3 and 4 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Amendment/Argument

1. Applicant's arguments, see pages 5-6 of the response, filed 3/8/2006, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C 102(b) over Fazan (US 6,259,125) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly cited reference of Okita (US 2003/0155595)

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation " the remaining ferroelectric" in claim1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 1765

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Okita (US 2003/0155595A1)

Okita discloses a method for forming a semiconductor device having a ferroelectric capacitor. The method comprises the steps of:

depositing a ferroelectric material 14 over an insulating layer 8 (col 4, paragraph 0063; fig. 3D)

a first etching step of etching of the ferroelectric material to form openings in it (col 4, paragraph 0066; fig. 3E)

depositing a layer 18 of alumina/electrode (it is known in the art to use aluminum oxide/alumina as an electrode, see prior art of record for evidence of this basis) into the openings formed in the ferroelectric layer (col 4, paragraph 0070; fig. 3F)

a second etching step, after depositing the layer 18/electrode, of etching the insulating layer 8 at the bottom of the openings to form opening /gaps in it (col 5, paragraph 0076; fig. 3I)

inserting conductive material 21b into the openings/gaps (col 5, paragraph 0086, fig. 3J)

Regarding claim 3, Okita discloses the step of planarizing the material layer 21 to form a flat upper surface on the ferroelectric material and depositing a insulating layer cap over it (col 5, paragraph 0087-0088)

Art Unit: 1765

Regarding claim 4, Okita discloses that the conductive layer 21b substantially fill the openings to a planarized level (fig. 3K)

Allowable Subject Matter

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

Claim 7 allowed.

The following is a statement of reasons for allowance/the indication of allowable subject matter: Regarding claim 2, the cited prior art of record fails to disclose or suggest a method for forming a ferroelectric device comprises the first etching step leaves a film of ferroelectric material remaining at the bottom of the openings, and the film of ferroelectric material is removed during the second etching step, in combination with the rest of the limitations/steps of claim 2. Regarding claim 7, the cited prior art of record fails to disclose or suggest a method for forming a ferroelectric device comprises the step of depositing an electrode layer into the openings formed in the ferroelectric layer in which the first etching step leaves a film of ferroelectric material remaining at the bottom of the openings, in combination with the rest of the limitation of claim 7

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hubby (US 2002/0154265) discloses that aluminum oxide/alumina/metal oxide can be used for an electrode (col 3, paragraph 0030)

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.


LV

March 31, 2006